

Chemical Datasheet

N-PENTANE



Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	USCG CHRIS Code
109-66-0 🄎	1265	Flammable Liquid	РТА

NIOSH Pocket Guide n-Pentane **International Chem Safety Card** n-PENTANE

NFPA 704

Diamond	Hazard	Value	Description
4	◆ Health	1	Can cause significant irritation.
1 0	♦ Flammability	4	Burns readily. Rapidly or completely vaporizes at atmospheric pressure and normal ambient temperature.
	Instability	0	Normally stable, even under fire conditions.
	♦ Special		

(NFPA, 2010)

General Description

A clear colorless liquid with a petroleum-like odor. Flash point 57°F. Boiling point 97°F. Less dense than water and insoluble in water. Hence floats on water. Vapors are heavier than air.

Hazards

Reactivity Alerts



Air & Water Reactions

Highly flammable. Insoluble in water.

Fire Hazard

Behavior in Fire: Containers may explode (USCG, 1999)

Health Hazard

Low toxicity. Very high vapor concentrations produce narcosis. Aspiration into lungs can produce chemical pneumonitis and/or pulmonary edema. (USCG, 1999)

Reactivity Profile

N-PENTANE is incompatible with strong oxidizers. It is also incompatible with strong acids, alkalis, and oxygen. Mixtures with chlorine gas have produced explosions. It will attack some forms of plastics, rubber, and coatings. (NTP, 1992).

Belongs to the Following Reactive Group(s)

• Hydrocarbons, Aliphatic Saturated

Potentially Incompatible Absorbents

No information available.

Response Recommendations

Isolation and Evacuation

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area for at least 50 meters (150 feet) in all directions.

LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet).

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2020)

Firefighting

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]:

CAUTION: The majority of these products have a very low flash point. Use of water spray when fighting fire may be inefficient. CAUTION: For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective.

SMALL FIRE: Dry chemical, CO2, water spray or regular foam.

LARGE FIRE: Water spray, fog or regular foam. Avoid aiming straight or solid streams directly onto the product. If it can be done safely, move undamaged containers away from the area around the fire.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. For petroleum crude oil, do not spray water directly into a breached tank car. This can lead to a dangerous boil over. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2020)

Non-Fire Response

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor-suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean, non-sparking tools to collect absorbed material.

LARGE SPILL: Dike far ahead of liquid spill for later disposal. Water spray may reduce vapor, but may not prevent ignition in closed spaces. (ERG, 2020)

Protective Clothing

Excerpt from NIOSH Pocket Guide for n-Pentane:

Skin: PREVENT SKIN CONTACT - Wear appropriate personal protective clothing to prevent skin contact.

Eyes: PREVENT EYE CONTACT - Wear appropriate eye protection to prevent eye contact.

Wash skin: WHEN CONTAMINATED - The worker should immediately wash the skin when it becomes contaminated.

Remove: WHEN WET (FLAMMABLE) - Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point $<100^{\circ}$ F).

Change: No recommendation is made specifying the need for the worker to change clothing after the workshift. (NIOSH, 2022)

DuPont Tychem® Suit Fabrics

No information available.

First Aid

EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

INGESTION: DO NOT INDUCE VOMITING. Volatile chemicals have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital. (NTP, 1992)

Physical Properties

Chemical Formula: C5H	12			
Flash Point: -57°F (NTP,	1992)			
Lower Explosive Limit (I	LEL): 1.5 % (NT	TP, 1992)		
Upper Explosive Limit (U	J EL): 7.8 % (NT	TP, 1992)		
Autoignition Temperatur	e: 500°F (USCG	i, 1999)		
Melting Point: -202°F (N	TP, 1992)			
Vapor Pressure: 400 mml	Hg at 65.3°F ; 42	6 mmHg at 68°F (NTF	P , 1992)	
Vapor Density (Relative t	to Air): 2.48 (NT	TP, 1992)		
Specific Gravity: 0.626 at	68°F (USCG, 19	999)		
Boiling Point: 97°F at 760	mmHg (NTP, 1	992)		
Molecular Weight: 72.15	(NTP, 1992)			
Water Solubility: less that	n 1 mg/mL at 70	°F (NTP, 1992)		
Ionization Energy/Potent	ial: 10.34 eV (N	IOSH, 2022)		
IDLH: 1500 ppm ; Based	on 10% of the lo	wer explosive limit. (N	NIOSH, 2022)	
AEGLs (Acute Exposure	Guideline Leve	ls)		
No AEGL information availa	ble.			
ERPGs (Emergency Resp	oonse Planning	Guidelines)		
No ERPG information available	ble.			
PACs (Protective Action	Criteria)			
Chemical	PAC-1	PAC-2	PAC-3	
Pentane, n- (109-66-0)	3000 ppm 👋	33000 ppm 👋 👋 👋	200000 ppm 👋 👋 👋	LEL = 15000 ppm

indicates value is 10-49% of LEL.

♥ ♥ ♥ indicates value is 100% or more of LEL.

(DOE, 2018)

Regulatory Information

EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112(r) RMP TQ
Pentane	109-66-0						10000 pounds

(EPA List of Lists, 2022)

CISA Chemical Facility Anti-Terrorism Standards (CFATS)

		RELEASE			THEFT			SABOTAGE		
Chemical of Interest	CAS Number	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue
Pentane	109-66-0	1.00 %	10000 pounds	flammable						

(CISA, 2007)

OSHA Process Safety Management (PSM) Standard List

No regulatory information available.

Alternate Chemical Names

- AMYL HYDRIDE
- N-PENTANE
- NORMAL PENTANE
- NORMAL-PENTANE
- PENTANE
- PENTANES
- SKELLYSOLVE A